

Information Deliverables Specifications for Research Projects Southwest Alaska Network

Last revised: Nov. 18, 2004

Deliverable Checklist

Project Name: _____
Date: _____
Contract: _____
Project Contact: _____

Deliverable	Due Date	Date Completed	Notes
Study Plan			
File Organizer			
Project Log			
Field Data Sheets			
Tabular Data			
GIS Data			
Photographs			
Data Collection Protocols			
Record of Protocol Changes			
Data Documentation			
Information Discovery			
Reports			
Maps			

Location of Materials (in-house):

Physical files: _____

Electronic files: _____

Notes/Specifications:

Information Deliverables Specifications for Research Projects Southwest Alaska Network

November 18, 2004

Purpose:

Management decisions are made based on the information obtained from research projects. The information deliverables listed here provide the archival record to help substantiate management decisions now and in the distant future.

This document describes the products which should appear on the SWAN Resource Management Project server, or a CD or DVD delivered to the park on a yearly basis as the principle component of project deliverables.

Most of the items described below reflect good management practices that would be undertaken in one form or another by most projects. Because this document labels, lists and discusses these practices, the deliverables list appears lengthy, a bit daunting perhaps.

Experience has shown that while it is a significant time investment to complete all these items, they all become **critical** at some stage of most projects. Without the tracking items and documents described below information is often lost or resurrected from memory. It should be expected that approximately 30% of all project effort goes towards data management.

To facilitate good project data management, SWAN will provide examples, advice and review of the products described below. We have found that if project technicians are given concrete data management tasks at the beginning of a project, producing the deliverables listed below becomes a relatively simple process. If a project waits until the end of the field season to start data management it defeats the purpose of some items and becomes an exercise instead of an asset. To help understand the additional effort involved in producing the deliverables each section contains an Efforts component.

If the documents and data described below are maintained on a regular basis, producing the yearly deliverable product should be as simple as taking the entire project folder structure, copying it to a CD and delivering it to the SWAN Data Manager.

Definitions:

A 'research project' or 'project' is the sum total of all documents and actions taken under the auspices of a NPS Research Permit.

Scientific Data Deliverables

By April of the calendar year following funding, the researcher will provide the NPS with a CD or DVD containing the following organized and documented information:

- Study plan
- File organizer
- Project Log
- Field data sheets
- Tabular data
- GIS data
- Photographs
- Data collection protocols
- Record of Protocol Changes
- Data documentation
- Information discovery
- Reports

Multi-year projects will deliver data on a yearly basis.

Study Plan

Description:

The Study Plan submitted as part of the project proposal should be considered a static document that defines how a project was envisioned. The Study Plan should be used as a starting point for the Data Collection Protocols defined below.

Effort:

Other than creating a single link to the Study Plan from the Project Organizer, the Study Plan as a deliverable should require no additional time efforts.

File Organizer

Description:

The project organizer acts much like a web 'home' page – it is the key document for finding all data and documents for the project. Hyperlinks on the File Organizer link to every deliverable category discussed below.

The purpose of the project organizer is to:

- Enable long-term access to the project methods, analysis and raw data.
- Help project personnel organize and find project documents and data.
- Help park managers access and understand the project data, results and management implications.

The File Organizer enables decision makers to become familiar with the project and to gain confidence in project the methods and results.

Ideally someone completely unfamiliar with a project should be able to open the File Organizer links and safely and efficiently go out and collect, process, analyze and report data for the project.

Guidelines:

File Organizer Template. – A word or html document that lives in the root folder of the project. Examples are available from the SWAN Data Manager. The File Organizer should be renamed to "index.doc".

Effort:

At least one project technician should be assigned to maintain the File Organizer on a bi-weekly basis. Key to success is to emphasize the importance of keeping the Organizer current from the start of the project.

Project Log

Description:

The Project Log is simply a single word document that documents significant project events such as field data collection trips, project meetings, data processing progress, analysis progress, report writing.

Effort:

One hour per week.

Field Data Sheets

Deliverable:

Field data sheets should be organized into a collection (e.g., in a 3-ring binder or book-box) on an annual basis at a minimum. Ideally, field data sheets will be scanned and linked to the appropriate data record in the project database. If a project wishes to do this, please contact the SWAN Data Manager for assistance.

Description:

The researcher will provide all completed field datasheets as copies, and preferably, as scanned images of the original data sheets. At the top of each page on the field sheet will contain the following information:

- 1) Date
- 2) Page number (preferably page number of number of pages)
- 3) Short name of project
- 4) Name of note taker and observers

Notes should be clearly printed and dark enough to be legible if copied or scanned.

Effort:

Data sheets will need to be organized by a project regardless of the deliverables requirement. Providing copies to the park as a deliverable may require about 2 days per year of effort to copy, organize and deliver. The preferred medium is as scans linked to the database.

Tabular Data**Deliverable:**

- MS Access XP or higher database.
- Database Design and Description written and provided in MS Word.

Description:

The preferred storage of tabular field data is in relational MS Access XP or higher databases. Whenever possible the database design should utilize existing database templates. Contact the Data Manager for the most current template.

If there is no appropriate database template, the data structure should follow the guidelines presented in The following guidelines:

- Alaska Support Office. 2002. National Park Service, Database Specifications for Inventory and Monitoring Studies.
- Alaska Support Office. 2002. National Park Service, Recommended Database Strategies including I&M Database Templates.
- Alaska Support Office. 2002. National Park Service, Recommended Naming Standards.

These guidelines also describe quality control procedures for data entry.

Database design needs to be reviewed and approved by the Data Manager before data entry is started. The Data Manager will review the database design for consistency with NPS database design strategies and to understand the database. If the Principal Investigator is unfamiliar with relational databases and database design, he or she should contact the Data Manager to make arrangements.

There are instances where other data formats are acceptable, especially where automated data collection instruments minimize or eliminate the possibility of data entry error. In such cases dbf, delimited text or other electronic formats may be acceptable. All non-Access formats must be approved by the park Data Manager prior to initiation of data collection.

If Excel is used, the Excel spreadsheet should follow the Recommended Naming Standards as described in the guidelines above and should be easily imported into Access.

FGDC compliant metadata should be provided for all data. Database design, attribute descriptions, table relationships, and data verification should be provided in a Database Design and Description document.

Data in each database should be reviewed and corrected using an approved verification method, such that data entry accuracy is 95% or greater. A description of the verification method and results will be included in the Database Design and Description document accompanying this database.

Effort:

Database design is time consuming and critical. It should be scheduled at the very earliest stages of a project to maximize benefit. A contracted database designer using an existing NPS template should be able to complete the basic structure in 2 – 3 weeks for about \$3000 - \$5000.

Database documentation can be started early as accurate Descriptions of all database objects. This can take about 2 days for a modestly complex database. Complete documentation should occur at the end of the project or at the end of the first 2 years.

Tabular data will need to be entered and stored electronically regardless of the deliverables requirement. Minimal additional effort should be required beyond the database design and documentation.

GIS Data**Deliverables:**

- ArcGIS coverage or shapefile
- Legend data
- Full FGDC compliant metadata
- Map products stored in uncompressed TIF files and PDF
- Related ancillary data

Description:

All field data which has a location associated with data collection should be considered GIS data and GIS data layers should be delivered. Note that many large complex projects produce a relatively small GIS layer. This layer documents data collection sites and store the bulk of the field data in a relational database. Analysis with GIS can create many additional layers. Analysis and summary GIS layers which provide significant insights should be delivered.

All aerial flights over the park should be documented as a GIS flight line layer.

GIS layers should include layers presenting and summarizing the current year's data. If the project spans multiple years, GIS layers should present and summarize the data for the entire project dataset.

GIS layers should be in datum of NAD83, Alaska Albers Equal Area Projection.

FGDC compliant Metadata for all GIS layers should be provided.

Guidelines:

- National Park Service. 2002. GIS Specifications for Resource Mapping, Inventories and Studies.
- National Park Service. November 2003. GPS for GIS Workflow website. Reviewed 3/16/2004 from <http://www.nps.gov/gis/gps/gps4gis/>

Effort:

GIS data will need to be entered and documented regardless of the deliverables requirement. Minimal additional effort should be required to comply with the deliverables requirement.

Photographic Data**Deliverables:**

- Well organized photographs in electronic format (JPG or uncompressed TIF)
- Contact sheet(s) of photos
- ThumbsPlus catalog file with metadata

Purpose:

Photos taken for a project should serve the project's needs. These needs can vary greatly. The project's needs may be driven by site, time, specimen, or method. Photos collected as part of the Data Collection Protocol are data and should be organized in a folder structure beneath the project database. Data photos should be linked to the project database.

Description:

All photographs should be provided in high resolution digital format on CD or DVD, and should be cataloged using ThumbsPlus or other approved cataloging software. Metadata for each photograph should be complete, following the guidelines provided. Medium and low resolution images should be included if they are integrated into the project databases.

Naming Standards:

The naming strategy used for photos should be documented in the Project Organizer, using the naming convention guidelines described above. File names should assist in the linking of the project's data and the photograph. Projects with a limited number of photos (<50) may elect to be descriptive with file names. Projects with larger number of images (>50) may elect a sequential image naming standard. For example:
SWAN_2002_BlackBearStudy_001.jpg Please refer to the guidelines for more specific instructions on managing photographs.

Guidelines:

SWAN and SEAN 2004. Digital Photographs Management Strategy for Alaska Inventory and Monitoring Program. National Park Service.

Effort:

Effort to organize and link data photos varies tremendously depending on the number of photos collected and the database they are linked to. If thousands of data photos are to be collected then a substantial effort should be made to construct database forms to facilitate data photo entry.

Data Collection Protocols**Deliverable:**

Protocols written and provided in MS Word.

Description:

Data collection protocols are a major component of the data deliverables. They should provide detailed descriptions of how the data is collected. They should include a complete description how data was collected for each data field on the data collection forms.

Guidelines:

Oakley, Karen, L. Thomas, S. Fancy. 2003. Guidelines for Long-term Monitoring Protocols. On website:
<http://science.nature.nps.gov/im/monitor/protocols/ProtocolGuidelines.pdf>

Effort:

Data collection protocols are a major time commitment. Expect to expend 5% of a project time on data collection protocols in the first and second years. Thereafter effort should decrease substantially.

Record of Protocol Changes

Description:

A single word document that chronologically documents and details changes in the way field data collection or data processing. This document consolidates information that a project would normally record somewhere; we are here-in simply giving the location a name and elevating its importance to that of a deliverable.

Effort:

Project personnel should be instructed to immediately enter all changes in data collection methods as they occur. Effort is minimal, one hour per week in the beginning stages of a project. As a project mature, effort should approach zero as few changes will occur.

Data Documentation

Deliverables:

- Full FGDC compliant metadata for all datasets
- Database Design and Description written and provided in MS Word
- Project tracking log in MS Word or text file.

Description:

FGDC compliant metadata should be provided for all data. Database design, attribute descriptions, table relationships, and data verification should be provided in a Database Design and Description document.

Data in each database should be reviewed and corrected using an approved verification method, such that data entry accuracy is 95% or greater. A description of the verification method and results will be included in the Database Design and Description document accompanying this database.

An explanation of any data processing procedures should be included in the Database Design and Description document. This includes quality assurance/quality control procedures, step-by-step processing steps, and analysis procedures. Use of illustrations, such as screen shots, is encouraged.

A project log is encouraged. The project log gives a day to day description of what was completed and the decisions made, and can be informally written in a Word or text file.

Multi-year projects should provide a detailed description of how and why data processing methods changed.

Guidelines:

- Federal Geographic Data Committee. 2000. Content Standard for Digital Geospatial Metadata Workbook.
- (I&M Specifications for Data Documentation – not written yet)

Information Discovery

(Literature Review/Bibliography/Data Clearinghouse Search)

A review of existing literature and data should be done with all projects. A summary of the information discovered through this process should be summarized. This may be included in the Study Plan or Report or written as a separate, informal report. Any significant findings, such as downloaded reports or protocols, should be stored in the project's \Information_Gathering subdirectory.

Reports

Deliverables:

- Reports written and provided in MS Word.
- Hard copy reports printed as specified.

Description:

Reports should summarize the projects data and review the data analysis in light of related scientific data and theory. Reports should also comment on the potential management implications of the project findings. Key decisions should be documented. Reports submitted to the Inventory and Monitoring Program will be written following the guidelines provided:

Guidelines:

Specifications for annual progress reports and final reports submitted to the Alaska Inventory and Monitoring Program, Alaska Region.

Copies:

An electronic copy of the report in MS Word and any supplement information in MS Office products is required. If desired, these may also be provided in Adobe PDF format, consolidated into one document or a series of documents with logical breaks. The use of bookmarks are encouraged.

For Annual Reports, 2 copies should be provided to the NPS primary contact. For Final Reports, a minimum of 12 copies should be provided to the NPS primary contact. These copies will be distributed to the appropriate libraries.

Other**Deliverables:**

- As described in the Study Plan or Contract

Description:

Other deliverables may be required. Such items may be voucher specimens, satellite imagery, DNA samples, acquired equipment, etc. How these materials should be handled should be further specified by the NPS Project Leader.

Data Structure

File naming conventions:

File naming conventions help in data management by clearly separating at a glance drafts from most current versions. These guidelines apply to all files:

- No spaces or special characters within the name
- Use date for version control, (YYYYMMDD, YYMMDD, or YYYYMM)
- Use underscore as delimiters
- Keep to about 50 characters or less.